

WHAT IS CLAIMED IS:

1. An optical switch comprising:  
a film basically consisting of a polymer;  
a keep plate having a switching through hole; and  
driving means, wherein  
5 said film has an optical waveguide linearly extending therein and a notch provided across a switching portion provided halfway said optical waveguide,  
said keep plate holds said film to expose said switching portion from said switching through hole,  
10 said driving means is employed for selecting a route of light by approximating and separating a gap of said notch, and  
said notch is formed by precedently forming a starting groove on the surface of said film and pressing said switching portion with a pressing member from the backside of said starting groove while holding said film  
15 with said keep plate thereby causing cleavage.
2. The optical switch according to claim 1, wherein said starting groove is located above the center of said optical waveguide by a distance longer than half the mode field diameter of a beam propagated through said optical waveguide.
3. The optical switch according to claim 1, wherein the width of the upper end of said starting groove is not more than 1  $\mu\text{m}$  on the deepest position of said starting groove.
4. The optical switch according to claim 1, wherein the bottom of said notch is arcuate as viewed from a side portion perpendicular to the longitudinal direction.
5. The optical switch according to claim 1, annealed after forming said notch by causing cleavage.

6. An optical switch comprising:  
a film basically consisting of a polymer;  
a keep plate having a switching through hole; and  
driving means, wherein

5       said film has an optical waveguide linearly extending therein and a notch provided across a switching portion provided halfway said optical waveguide,

      said keep plate holds said film to expose said switching portion from said switching through hole,

10       said driving means is employed for selecting a route of light by approximating and separating a gap of said notch,

      said notch is formed by precedently forming a starting groove on the surface of said film and pressing said switching portion with a pressing member from the backside of said starting groove while holding said film with a cleavage keep plate having a cleavage through hole to expose said  
15       switching portion from said cleavage through hole thereby causing cleavage, and

      the width of said cleavage through hole in a direction perpendicular to said notch is larger than the width of said switching through hole in the  
20       direction perpendicular to said notch.

7. A method of manufacturing an optical switch including a step of holding a film basically consisting of a polymer and having an optical waveguide linearly extending therein with a keep plat having a switching through hole and pressing a starting groove provided on a surface portion  
5       of said film corresponding to a switching portion provided halfway said optical waveguide with a pressing member from the backside through said switching through hole thereby causing cleavage for forming a notch across said switching portion from said starting groove.

8. The method of manufacturing an optical switch according to claim 7, wherein said pressing member alternately repeats a state of pressing said film and a state of not pressing said film for fatiguing said

film in said step of causing cleavage.

9. The method of manufacturing an optical switch according to claim 8, wherein said pressing member reciprocates at a first stroke until said starting groove causes a crack and gradually increases the stroke after said starting groove causes said crack.

10. The method of manufacturing an optical switch according to claim 7, wherein said pressing member presses said starting groove on two points holding said optical waveguide therebetween.

11. The method of manufacturing an optical switch according to claim 7, carrying out said step of causing cleavage while monitoring optical characteristics related to a pressed point.

12. The method of manufacturing an optical switch according to claim 7, further including a step of crushing said switching portion from a surface portion provided with said notch after forming said notch through said step of causing cleavage.

13. The method of manufacturing an optical switch according to claim 12, carrying out said step of crushing said switching portion with a load substantially equal to a load necessary for said film to start plastic deformation.